IN THE CLAIMS:

FEB 0 1 2001

RECEIVED

FEB 12 2001

TECH CENTER 1600/2900

Please amend the claims

Please amend Claims 29 and 33 to read as follows:

29. (Twice Amended) An isolated polynucleotide for diagnosing hereditary

hemochromatosis comprising at least 8 consecutive bases and up to about 100 consecutive bases of the sequence shown in SEQVD NOS:1 or 2, or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphic site shown in Table 1.

33. (Twice Amended) An isolated polynucleotide for diagnosing hereditary hemochromatosis comprising at least/18 consecutive bases and up to about 100 consecutive bases of the sequence shown in SEQ ID NOS:1 or 2, or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphic site shown in Table 1.

## Please add new Claims 49-79:

49. (New) An isolated polynucleotide consisting of at least 8 consecutive bases and up to about 100 consecutive bases of the sequence shown in SEQ ID NOS:1 or 2, or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphic site shown in Table 1.

- 50. (New) The isolated polynucleotide of Claim 49, wherein the polymorphic site is at base 61465 of SEQ ID NO:1.
- 51. (New) The isolated polynucleotide of Claim 49, wherein the polymorphic site is at base 35983 of SEQ ID NO:1.

- 52. (New) A pair of isolated polynucleotides as in Claim 49.
- 53. (New) A kit comprising an isolated polynucleotide of Claim 49.
- 54. (New) A kit comprising at least one pair of isolated polynucleotides as in Claim 52.

55. (New) An isolated polynucleotide consisting of at least 18 consecutive bases and up to about 100 consecutive bases of the sequence shown in SEQ ID NOS:1 or 2, or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphic site shown in Table 1.

- 56. (New) The isolated polynucleotide of Claim 55, wherein the polymorphic site is at base 61465 of SEQ ID NO:1.
- 57. (New) The isolated polynucleotide of Claim 55, wherein the polymorphic site is at base 35983 of SEQ ID NO:1.
  - 58. (New) A pair of isolated polynucleotides as in Claim 55.
  - 59. (New) A kit comprising an isolated polynucleotide of Claim 55.
- 60. (New) A kit comprising at least one pair of isolated polynucleotides as in Claim 58.

61. (New) An isolated polynucleotide consisting of a fragment of at least about 100 consecutive bases and up to about 235 consecutive kilobases of the sequence shown in SEQ ID NOS:1 or 2, or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphic site shown in Table 1.

- 62. (New) The isolated polynucleotide of Claim 61 which is cDNA.
- 63. (New) The isolated polynucleotide of Claim 61 which is RNA.
- 64. (New) The isolated polynucleotide of Claim 61 which is genomic DNA.

65. (New) An isolated polynucleotide consisting of a fragment of at least about 300 consecutive bases and up to about 235 consecutive kilobases of the sequence shown in SEQ ID NOS:1 or 2, or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphic site shown in Table 1.

- 66. (New) The isolated polynucleotide of Claim 65 which is cDNA.
- 67. (New) The isolated polynucleotide of Claim 65 which is RNA.
- 68. (New) The isolated polynucleotide of Claim 65 which is genomic DNA.
- 69. (New) An isolated polynucleotide comprising at least 8 consecutive bases and up to about 100 consecutive bases of the sequence shown in SEQ ID NOS: 1 or 2, or the

-8-

レー

FEB 12 2001

complement thereof, wherein sin is of the polynucleotide includes at least one polynucleotide include at least one polynucleotide include at least one polynucl

site selected from the group consisting of polymorphic sites listed in the following table:

FEB 0 1 2001

MAIL BATE

CANCELLED

POLYMORPHIC SITE	POLYMORPHISM
IN SEQ ID NO:1	
841	T-C
2662-2663	TT DEL
3767	T-C
3829	C-G
4925-4928	TAAA DEL
5691	С-Т
5839	T-C
6011	G-A
6047	C-G
6231	G-A
6643	ADEL
6698	T-C
7186	\T-¢
7273	G-A
7545-7558	TCACACACCGATTGG DEL
	(SEQ ID NO:17)
7672	G DEL
7933	T-C\
8746	T-G\\
9115	G-A \\
9823	G-A \\
10027	G-A \
10214	C-T
10828	A-G
10918	C-G
10955	A-G
11524	C-A
11674	A-G
11955	T-C
12173-12175	TTT DEL \
13304	G-A
13455	G-A
14416-14417	A INS
14998	C-T
15564	T-C
15887	A-G
15904-1 5919	CCAAACTGATCTTTGA DEL
	(SEQ ID NO:18)
16019	T DEL \
16211	A-T
17461	A-G
19755	G-A
19949	C-T
20085	C-T
20366-20367	A INS
20463	C-A
20841	A-T

FEB 0 1 2001 &

## RECEIVEL

FEB 12 2001

TECH CENTER 1600/2900

## FEB O 7 PROCES

YMORPHIC SECTION	POLYMORPHISM
IN SEQ ID NO:1	
₹1059	A-T
2\117	A-G
2\837	A-C
22293	A-C
22786	C-A
23009	G-A
24143\	T-A
26175	G-C
26667\\	C-A
26994 \ \	T-C
27838 \ \	G-T
27861 \ \	T DEL
28132 \	G-A
29100 \	G-A
29454-29437 \	TTTT DEL
29787	T-G
29825	A-C
30009	T-C
30177	A-G
30400	A-G
31059	T-A
31280	C-T
31749	C-T \
32040	C-G
33017	T-G
33026	T DEL
34434	C-T
35179	¼-Ç∕
35695	,OtA
35702	G- <b>\</b>
35983	A-G\
37411	A-G \
38526	C-T \
40431	C-A
42054-42055	TT DEL \
43783-43784	TTTT INS \
45120	C DEL!
45567	A-C
46601	A-T
47255	C-G \
47758	C-A
47994	G-C
48440	G-A
48650	T-G
48680	A-G
50240	C-T
50553	G-A
50586	G-T
51322	G-C
51747	A-G
52474	C-G
52733	C-A
52875	G-A
53707	G-A

FEB 0 1 2001 22

OIPE OIPE TO TRADEMANUES

``	3	
I	POLYMORPHICALTE	POLYMORPHISM
٦	SEQ ID NO:	
ונ	54819	A-G
	55913	T-C
ŀ	56225	A-C
ł	56510	T-C
ŀ		
١	56566	G-A
١	56618	A-T
	57815\	A-G
	58011 \	T DEL
	58247-58248	T INS
1	58926	C-G
ı	59406	C-G
)	59422	G-C
ł	60221-60222	A INS
ł	60656-60657	CA DEL
ł	61162	G-A
Į		
J	61465	G-A
ļ	61607 \	A DEL
١	61653	T-C
ı	61794-61795	T INS
١	62061	G-C
J	62362	T-G
ı	62732	C-G
1	63364	G-A
1	63430-63431	GT INS
١	63754	C-T
J	63785	A-C
١	63870-63871	A INS
١	64788	A-G
1	64962	
١		G-A C-T
ı	65891	
1	66675	G-Q
١	67186-67187	ATT\INS'
-	67746-67747	TT INS
ı	68259	T-Ø \
Į	68836	7-C
-	68976	C-G \
	72508	T-G \
1	72688	C-G \
١	75323-75324	T INS \
j	75887	G-C
ı	77519	T-C
	77749	G-A
ı	77908	\T-C
-	78385	C-G
Į	78592-78593	
-		AG INS
1	80189	T-G
	80279	T DEL \
1	80989-80990	A INS
Į	81193	T-C \
	81273	A DEL \
	82166	G-A
ı	83847	T DEL
	84161-84162	CA-GG \
Į	84533	A-G
ı	0.1222	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \

RECEIVED

FEB 12 2001

TECH CENTER 1600/2

POLYMORPHIC SITE	POLYMORPHISM
IN SEQ ID NO:1	
84638	T-G
<b>\</b> 855,26	T-G
<b>8</b> 5705	G-T
88984	T-C
876\$5\	T-C
87713	A-C
87892	C-T
88192	T DEL
88528	A-G
89645	A-T
89728	A-G
90088	T-C
91193-91194	2209bp INS
91373	T-C
91433-91434	A INS
91747	G-A
93625	T DEL
95116-95117	TINS
96315	G-A
97981	A-G T DEL
98351	C-T
99249	N 8
100094-1 00095 100647-100648	TINS TCINS
100647-100648	
	C-d
101610 102589	<del>C</del> N −
103076-1 03077	TATATATATATA INS (SEQ
103070-103077	ID No:19)
103747	T-C
105638	A-C
107024	C-T
107322	C-T \
107858	C-G
109019	A DEL
109579	T DEL
110021	C-A
111251	C-A
111425	G-A
112644	T-A
113001	G-C
113130	C-T
114026	G-A
114250	A DEL
115217	C-G
117995	G-A
118874	A-G
119470	T-C
119646	G-T
120853	C-T
121582	G-A
123576	A-C
125581	C-T
125970	G-T

POLYMORPHIC SITE	POLYMORPHISM
IN SEQ ID NO:1	
126197	A-G
1266 2	A DEL
126672	G-C
128220 128221	A INS
132569	C-T
133572	A-C
134064	T-G
136999	G-A
137784	C-T
138903	G-A
1391 59-1 39100	A INS
140359	G-A
140898	C-T
141313	C DEL
141343	T-C
142148	T-C
142178	C-A
142433-1 42434	ATAGA INS
143783	C-T
144090	<b>¢</b> -T
144220-144221	A INS /
144725	VA-C
145732-145733	AAAAAAAAAAAA INS (SEQ ID NO:20)
147016-147017	CG DEL
147021	G-1X
147536	Ţ∕G\
148936	T-A \
149061	T-C \
154341	A-T \
154588	G-A
155464	G-A
158574	C-G
160007	C-T
164348	A-T
164499	C-G
166677-166678	AAAG INS \
167389	G-A
168506-168507	AGGATGGTCT INS (SEQ ID
160515	NO:21)
168515	T-C
169413-169414	AA INS
170300-170301	TTGTTGTTGTTG INS (\$EQ ID NO:22)
170491	G-A
173428	T-C
173642	G-A
173948	T-G
175330	T-C
175836	T-C
176200	G-C
176222	T-C \
176524	A-T
176684	G-A

-13- CA1 - 260009.1

POLYMORPHIC SITE	POLYMORPHISM
IN SEQ ID NO:1	
<b>\</b> 76815	T-C
1√7049	T-C
17√065	G-T
178285	T-C
179114-179115	A INS
179260	C-G
179281	C-G
180023	G-C
180430 \	T-C
180773	T-C
180824	T-C
181097	C-T
181183	A-T
182351	C-T
183197	G-A
183623	A-T
183653	G-T
183657	T-G
183795-183796	A INS
184060	G-A
184993	G-A
185918	A-G
186036	T-C
186506-186507	TAAC INS
186561-186568	TATTIATT DEL
186690	G DEL
186751	T-A
187221	A-G
187260	A-6
187444-187447	CTCPDEL
187831-187832	CXNS
188638	G-A
188642	C-T \
189246	T-C \
190340	A-C \
190354	A-G
190762	A-G
191260	G-T
193018-193019	AGAT INS
193147	T-G
193196-193197	CINS
193499	C-T
193738	C-G
193984-193985	ACACACAC INS
194064	C-G
194504	A DEL
194734	G-A
194890	A-C
195404	G-A
195693	A-T
196205	G-A
197424	C-T
197513	C-T
197670	G-A
	<u>,</u>

POLYMORPHIC SITE	POLYMORPHISM
IN SEQ ID NO:1	
198055	C-A
198401	C-T
198692	A-G
198780	T DEL
199030	T-G
199933	C-T
200027	G-A
200439	T-A
2004\$2	A-G
200478-200483	AATAATAATAAT DEL (SEQ ID
2001/200100	NO:24)
200559	A-T
200745	A-G
200919	T-A
201816	C-T
201861-201862	42bp INS
202662	T-C
202880	T-C
204341	C-TA
204768	A-fr
205284	T/G
207400	<del></del>
208634	1-C
208718	VT DEL
208862	A-C
209419-209420	TT DEL
209802	G-A
209944	C-G
210299	A-G
211142	G-A
212072	G-A
212146	T-C
212379	G-A
212637-212639	TCTDEL
212696	T-C
213042	T-A
214192	A-G
214549	T-C
214795	C-T
214908	T-G
214977	A-G
215769	C-T
215947	C-A
216232	A-G
217478	G-A
219052	T-C
219082-219083	ATATATATATATATATAT
	INS
219314	C-A
219327	G-A
219560	C-T
219660	C-T
219889	G-A
220198	G-T
220170	L 974

POLYMORPHIC SITE IN SEQ ID NO:1	POLYMORPHISM
220384	G-A
220451-220452	CAAAAA INS
221363	G-A
221645	G-A
222119	T-C
222358	A-G
222367	A-C
222686	A-G
222959	T-C
223270-223271	TT DEL
223283	T-C
224964	T-C
225232	A-C
225416	G-C
225486	T-C
226088	A-G
228421	A-G
230047	G-A
230109	G-C
230376	C-G
230394	A-C
231226	A-G
231447	G-A
231835	A-G
232400-232402	AAA DEL
232402-232403	G INS
232515	Q-C
232703	G- <u>/</u> I
232750	A-d

70. (New) The isolated polynucleotide of Claim 69, wherein the polymorphic site is at base 61465 of SEQ ID NO:1.

71. (New) The isolated polynucleotide of Claim 69, wherein the polymorphic site is at base 35983 of SEQ ID NO:1.

72. (New) A pair of isolated polynucleotides as in Claim &9.

73. (New) A kit comprising an isolated polynucleotide of Claim 69.

74. (New) A kit comprising at least one pair of isolated polynucleotides as in Claim

72.

75. New) An isolated polynucleotide comprising at least 18 consecutive bases and up to about 100 consecutive bases of the sequence shown in SEQ ID NOS: 1 or 2, or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphic site selected from the group consisting of polymorphic sites listed in the following table:

POLYMORPHIC SITE IN SEQ ID NO:1	POLYMORPHISM
841	T-C
2662-2663	TT DEL
3767	T-C
3829	C-G
4925-4928	TAAA DEL
5691	C-T
5839	T-C
6011	G-A
6047	C-G
6231	G-A
6643	ADEL
6698	T-P
7186	<b>X</b> (-C
7273	G\A
7545-7558	TCACACCGATTGG DEL
<u> </u>	(SEO ID NO:17)
7672	G DEL
7933	T-C \
8746	T-G
9115	G-A
9823	G-A \
10027	G-A \
10214	C-T
10828	A-G
10918	μC-G \
10955	A-G
11524	C-A
11674	A-G
11955	T-C
12173-12175	TTT DEL \
13304	G-A
13455	G-A
14416-14417	A INS
14998	C-T
15564	T-C
15887	A-G
15904-1 5919	CCAAACTGATCTTTGA DEL \
	(SEQ ID NO:18)

POLYMORPHIC SITE	POLYMORPHISM
IN SEQ ID NO:1	
16019	T DEL
16211	A-T
17461	A-G
19755	G-A
19949	C-T
20085	C-T
20366-20367	A INS
20463	C-A
20841	A-T
21059	A-T
21117	A-G
21837	A-C
22293	A-C
22786	C-A
23009	G-A
24143	T-A
26175	G-C
26667	C-A
26994	T-C
27838	G-T
27861	T DEL
28132	G-A
29100	G-A
29454-29457	TTTT DEL
29787	T-G
29825	A-C
30009	\T-C
30177	A-G
30400	A\G
31059	T-A
31280	C- <b>7</b>
31749	€-T
32040	C-G \
33017	T-G \
33026	T DEL
34434	C-T
35179	A-C
35695	G-A
35702	G-A
35983	A-G
37411	A-G
38526	C-T
40431	C-A
42054-42055	TT DEL \
43783-43784	TTTT INS
45120	C DEL \
45567	A-C
46601	A-T
47255	C-G
47758	C-A
47994	G-C
48440	G-A
48650	T-G
48680	A-G

POLYMORPHIC SITE	POLYMORPHISM
IN SEQ ID NO:1	
50240	C-T
50553	G-A
50586	G-T
151322	G-C
51747	A-G
\$2474	C-G
52733	C-A
52875	G-A
53 707	G-A
54819	A-G
55918	T-C
56225	
	A-C
56510	T-C
56566	G-A
56618	A-T
57815	A-G
58011	T DEL
58247-58248	TINS
58926	C-G
59406	ΦG
59422	₿-C
60221-60222	/A INS
60656-60657	CA DEL
61162	G-A
61465	G-A
61607	\A DEL ,
61653	T-C
61794-61795	TVINS
62061	G-¢
62362	T-G\
62732	C-G^\
63364	G-A
63430-63431	GT INS
63754	C-T \
63785	A-C \
63870-63871	A INS
64788	A-G \
64962	G-A
65891	C-T
66675	G-C
67186-67187	ATTINS
67746-67747	TT INS
68259	T-C
68836	T-C
68976	C-G
72508	T-G
72688	C-G
75323-75324	TINS
75887	G-C
77519	T-C
77749	G-A
77908	T-C
78385	C-G
78592-78593	AG INS
10394-10393	AU INS

POLYMORPHIC SITE	POLYMORPHISM
IN SEQ ID NO:1	
80189	T-G
80279	T DEL
80989-80990	A INS
81193	T-C
81273	A DEL
82166	G-A
83847	T DEL
84161-84162	CA-GG
84333	A-G
84638	T-G
85526	T-G
85705	G-T
86984	T-C
87655	T-C
87713	A-C
87892	C-T
88192	T DEL
88528	A-G
89645	<b>A</b> √T
89728	A-G
90088	T-C
91193-91194	2209bp IN\$
91373	\T-C
91433-91434	AINS
91747	G-X
93625	TDEL
95116-95117	TINS
96315	G-A
97981	AG
98351	T DEL \
99249	C-T
100094-1 00095	TINS
100647-100648	TTC INS
100951	C-T
101610	C-G
102589	C-T
103076-1 03077	TATATATATATA INS (SEQ
102747	ID NO:19)
103747	T-C
105638	A-C C-T
107024	
107322	C-T
107858 109019	C-G A DEL
	T DEL
109579	C-A
110021	
111251	C-A
111425	G-A
112644	T-A
113001	G-C C-T
113130	
114026	G-A
114250	A DEL
115217	C-G

-20-

POLYMORPHIC SITE	POLYMORPHISM	
IN SEQ ID NO:1		
117995	G-A	
118874	A-G	
119470	T-C	
119646	G-T	
1/20853	C-T	
12/1582	G-A	
123576	A-C	
125381	C-T	
125970	G-T	
126197	A-G	
126672	A DEL	
126672	G-C	
128220-128221	A INS	
132569	C-T	
133572	A-C	
134064	T-G <sub>A</sub>	
136999	G-44.	
137784	C- <b>/</b> T	
138903	G-A	
1391 59-1 39160	A INS	
140359	G-A	
140898	XC-T	
141313	& DEL	
141343	T-C	
142148	T-C\	
142178	C-A	
142433-1 42434	ATAGA IMS	
143783	C-T	
144090	C-T	
144220-144221	A INS	
144725	A-C	
145732-145733	AAAAAAAAAAAA INS (SEQ	
	ID NO:20)	
147016-147017	CG DEL \	
147021	G-T	
147536	T-G	
148936	T-A	
149061	\\T-C \\ \A-T \\	
154341		
154588	G-A	
155464 158574	C-G	
160007	C-T	
164348	A-T	
164499	C-G	
166677-166678	AAAG INS	
167389	G-A	
168506-168507	AGGATGGTCT INS (SEQ ID	
100300-100307	NO:21)	
168515	T-C	
169413-169414		
170300-170301	AA INS TTGTTGTTGTTG INS (SEQ ID	
1 / 0300-1 / 0301	NO:22)	
170491	G-A	
170431	[ U-A	

POLYMORPHIC SITE	POLYMORPHISM
IN SEQ ID NO:1	
173428	T-C
173642	G-A
173948	T-G
175330	T-C
175836	T-C
1√6200	G-C
176222	T-C
176324	A-T
176684	G-A
176813	T-C
177049	T-C
177065	G-T
178285	T-C
179114-1791\5	A INS
179260	C-G
179281	C-G/\
180023	G-C
180430	T-C
180773	T-Q
180824	T-d
181097	C-1
181183	A-T
182351	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
183197	<u>6-</u> A
183623	AVI
183653	Gil
183657	TG
183795-183796	AINS
184060	GA
184993	GA
185918	AG
186036	TC
186506-186507	TAACINS
186561-186568	TATTTATT DEL\
186690	G DEL
186751	T-A
187221	A-Q
187260	A-G
187444-187447	CTCT DEL
187831-187832	CINS
188638	G-A
188642	C-T
189246	T-C
190340	A-C
190354	A-G
190762	A-G
191260	G-T
193018-193019	AGAT INS
193147	T-G
193196-193197	CINS
193499	C-T
193738	C-G
193738	ACACACAC INS
194064	C-G
194004	<u> </u>

POLYMORPHIC SITE	Pe	OLYMORPHISM		
IN SEQ ID NO:1	<u> </u>			
194504	A DEL	A DEL		
194734	G-A			
194890	A-C			
195404	G-A			
195693	A-T			
196205	G-A			
197424	C-T			
197513	C-T			
19√670	G-A			
198055	C-A			
198401	C-T			
198692	A-G			
198780	T DEL			
199030\	T-G			
199933	C-T			
200027	G-A			
200439	T-A			
200452	A-G			
200472-200483	AATAAT	TAATAAT DEL (SEQ ID		
\	NO:24)			
200559	A-T			
200745	A-G			
200919	T-A			
201816	C-T			
201861-201862	42bp INS			
202662	T-C			
202880	T-C			
204341	√C-T			
204768	AT			
205284	T-O			
207400	GA \			
208634	T-C			
208718	TDEL	<b>\</b>		
208862	A-C			
209419-209420	TT DEL			
209802	G-A	<u> </u>		
209944	C-G	<del>                                     </del>		
210299	A-G	<del>                                     </del>		
211142	G-A	<u> </u>		
212072	G-A T-C	<del></del>		
212146	G-A			
212379	l – –			
212637-212639	TCTDEL			
212696	T-C			
213042	T-A			
214192	A-G			
214549	T-C			
214795	C-T			
214908	T-G			
214977	A-G			
215769	C-T			
215947	C-A			
216232	A-G			
217478	G-A			

POLYMORPHIC SITE	POLYMORPHISM
IN SEQ ID NO:1	
219052	T-C
219082-219083	ATATATATATATATATAT
210214	C-A
219314	G-A
219327 219560	C-T
219660	C-T
219889	G-A
220198	G-T
220384	G-A
220451-220452	CAAAAA INS
221863	G-A
221645	G-A
222119	T-C
222358	A-G
222367	A-C
222686	Ā-Ğ
222959	
223270-223271	T.C TT DEL
223283	T-C
224964	T-C
225232	A-C
225416	G-C T-C
225486	
226088	A-G
228421	A-G
230047	G <sub>A</sub>
230109	&C
230376	C G /
230394	A-X
231226	A-G
231447	G-A
231835	Ā-G
232400-232402	AAA DEL
232402-232403	G INS
232515	Ģ-C
232703	G-T
232750	A-G

76. (New) The isolated polynucleotide of Claim 75, wherein the polymorphic site is

77. (New) The isolated polynucleotide of Claim 75, wherein the polymorphic site is at base 35983 of SEQ ID NO:1.

at base 61465 of SEQ ID NO:1.

-24-

CA1 - 260009.1

78. (New) A pair of isolated polynucleotides as in Claim 75.

79. (New) A kit comprising an isolated polynucleotide of Claim 75.

A clean copy of the claims as herein amended is presented as Exhibit A.